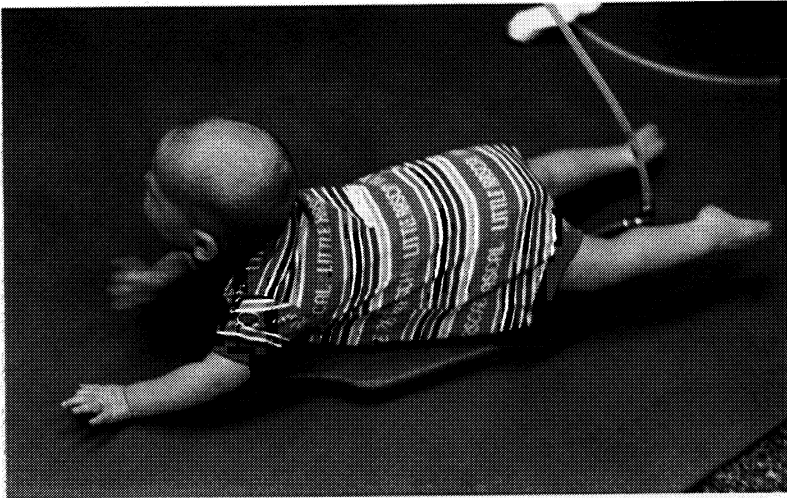


Crawling Aid



Learning to crawl, the first step toward full human mobility, is generally taken for granted. But some brain-injured children are unable to crawl, due to the problems of weight-bearing and friction, caused by gravity. For several years, the Institutes for the Achievement of Human Potential, Philadelphia, Pennsylvania sought a method of reducing the restrictions imposed by gravity. A variety of devices were tested; some offered a minor degree of help, most failed. Now, however, through a collaborative effort by the Institutes and Ames Research Center, an effective crawling aid has been developed. Fifty of the devices have been built and are being used as part of an overall rehabilitation program conducted by the Institutes.

Shown in the accompanying photos, the device is known as the Vehicle for Initial Crawling (VIC); the acronym is a tribute to the crawler's inventor, Hubert "Vic" Vykukal, an Ames engineer who applied technology originally developed for frictionless systems designed to simulate the motions of satellites in space. The VIC is a rounded plywood frame large enough to support the child's torso, leaving arms and legs free to move. On its underside are three aluminum discs through which air is pumped to create an air-bearing surface that has less friction than a film of oil. The upper side contains the connection to the air supply and a pair of straps which restrain the child and cause the device to move with him.

The intent is to recreate the normal neurological connection between brain and muscles which was impaired by the brain injury. When the child makes a movement that causes him to slide forward on the frictionless surface, he receives positive mental "feedback" that encourages him to repeat the movement. Over repetitive use of the device, he develops his arm and leg muscles as well as coordination. In one test case, a four-year-old who once needed 16 hours to crawl a single foot was able, after a month on the device, to crawl 16 feet on his own in 25 minutes. In another, a 10-year-old who could crawl only 13 feet in eight hours managed 140 feet in four hours after seven months on the VIC. Children are given alternating therapy, with and without the VIC, until eventually the device is no longer needed. An Institutes official states that the VIC is not expected to solve the problems of all immobile children, but thousands could benefit from the device.

